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09/954,449	09/17/2001	Youqi Wang	1012-125 (2001-023)	6572

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EXAMINER

GUTIERREZ, ANTHONY

ART UNIT	PAPER NUMBER
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2857

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/954,449

Applicant(s)

WANG ET AL.

Examiner

Anthony Gutierrez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5, 8-11, 13-16, 20, 26 and 30-33 is/are allowed.
- 6) ☒ Claim(s) 6, 7, 12, 17-19, 21-25, 27-29 and 34-36 is/are rejected.
- 7) ☒ Claim(s) 17, 25 and 35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/19/04.
- ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: 20040629.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. In the previous Office Action, the Examiner indicated that he did not possess copies of some of the references cited on the Information Disclosure Statement and they were therefore not considered. The Applicant has submitted copies of the unconsidered references and the Examiner has presently considered all of them except for one. The reference "U.S. Provisional Application Serial No. 60/122704" has not been considered because the title provided on the Information Disclosure Statement does not agree with the title on the reference.

### ***Claim Objections***

2. Claim 17 is objected to because the word "electromagnetic" is misspelled in step (c).

Claim 25 is objected to because it recites the limitation "the characteristic".

There is insufficient antecedent basis for this limitation in the claim.

Claim 35 is objected to because it includes two steps (b) and is missing a step (a).

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 6, 7, and 12, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6, recites the phrase "change in the characteristic".

Claim 7, recites the phrase "said characteristic".

Claim 12 recites the phrase "the characteristic of the at least four sample materials".

All three of these claims ultimately depend on claim 1, which previously and currently does recite "A method for optically screening sample materials for at least one characteristic". Although the word "characteristic" in the preamble of claim 1 provides antecedent basis, the Examiner considers the claims to be indefinite because claim 1 is newly amended and previously recited the limitation "(d) correlating the response of the electromagnetic wavefront to a **characteristic** of the at least four sample materials" which in amended form currently recites the limitation "(d) correlating the response of the electromagnetic wavefront to a **surface topography** of the at least four sample materials".

Although claims 6 and 7 may properly refer to the "characteristic" stated in the preamble of claim 1, claim 12 currently lacks antecedent basis due to the amendment of the claims that changed the word "characteristic" to the words "surface topography" in step (d) of claim 1, because claim 12 specifically recites "the characteristic **of the at least four sample materials**". This suggests to the Examiner that it is possible that claims 6 and 7, and very likely claim 12 were intended to refer to the previously existing "characteristic" of step (d) of claim 1, instead of the "characteristic"

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of the preamble of claim 1, and therefore appropriate correction is required with respect to at least claim 12.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 35 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Hajduk et al. (US Patent 6,535,284 B1).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As to claims 35 and 36, Hajduk et al. discloses a method without probe contact that includes:

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- providing a library of at least four sample materials upon a substrate (col. 20, lines 50-66 and Fig. 15);
- directing an electromagnetic wavefront through a partial mirror at a substantially planar surface of each of the at least four sample materials (col. 2, lines 29-37, col. 4, lines 6-9, and col. 18, lines 24-29);
- monitoring a response of the electromagnetic wavefront after the wavefront encounters the at least four sample materials (col. 2, lines 39-52); and
- correlating the response of the electromagnetic wavefront to a thickness of the at least four sample materials (col. 18, lines 57-67, and col. 23, line 61-col. 24, line 7).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 17-19, 21-25, 27-29, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nicolich et al. (US Patent 6,697,454 B1) in view of Hajduk et al. (US Patent 6,535,284 B1).

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As to claims 17, and 18, Nicolich et al. discloses a method for optically screening sample materials for topography without contacting sample materials with a solid object, the method comprising (see col. 10, lines 27-50 and Fig. 11):

- providing a library of at least four sample materials (Fig. 11, plural elements 301);
- directing an electromagnetic wavefront at a surface of each of the at least four sample materials (Fig. 11, element 110);
- monitoring a reflected portion of the electromagnetic wavefront that is reflected off of the at least four sample materials (Fig. 11, element 410); and
- correlating the reflected portion of the electromagnetic wavefront to a topography of each of the at least four sample materials (col. 10, lines 35-37 where surface roughness is equivalent to topography).

Nicolich et al. does not specifically disclose that the wavefront is directed simultaneously at each sample surface.

Hajduk et al, however, discloses that parallel techniques in throughput screening measure one or more properties of all library members simultaneously. This provides the benefit of allowing the use of instruments that have comparatively sluggish response times (col. 1, lines 40-46).

It therefore would have been obvious to one of ordinary skill in the art at the time of invention to apply the method of Nicolich et al. to multiple samples surfaces simultaneously in order to avoid the requirement of instruments that have short response times.

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As to claim 21, Nicolich et al. implies that steps (b) through (d) are repeated for determining a change in the topography of the at least four sample materials (col. 10, lines 37-40 with respect to interface roughness).

As to claim 22, Nicolich et al. discloses wherein each of the at least four sample materials is supported upon a suspended platform (Fig. 11, element 300).

As to claims 23-25, Hajduk et al. discloses applying a stimulus to the at least four sample materials prior to the step of monitoring the reflected portion of the electromagnetic wavefront wherein the stimulus causes movement of the at least four sample materials at least during a portion of the step of monitoring the response of the electromagnetic wavefront (col. 17, lines 12-25).

As to claims 27 and 28, Nicolich et al. implies that the electromagnetic wavefront is provided by a laser (col. 2, lines 30-51).

As to claims 29, discloses wherein the electromagnetic wavefront is a single wavelength monotonic light (col. 10, lines 43-46).

As to claims 19 and 34, Nicolich et al. implies correlation of the topography of the surface of the sample materials to a volume or thickness of the sample materials (col. 10, lines 35-37).

#### ***Allowable Subject Matter***

9. Claims 6, 7, and 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.



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10. Claims 1-5, 8-11, 13-16, 20, 26, and 30-33 are allowed.

11. Claim 30 was allowed with a statement of reasons in the previous Office Action.

The following is a statement of reasons for the indication of allowable subject matter with respect to claims 1-16, 26, and 31-33:

The Applicant's claimed invention is deemed allowable over the prior art as the prior art fails to teach or fairly suggest optically screening sample materials by correlating a response of an electromagnetic wavefront to a surface topography of at least four sample materials wherein steps (a) through (d) of the claims are performed without substantially contacting the sample materials with any probe and wherein the wavefront is directed at a surface of the sample materials through a partial mirror or is provided by an interferometer.

The following is a statement of reasons for allowance with respect to claim 20:

The Applicant's claimed invention is deemed allowable over the prior art as the prior art fails to teach or fairly suggest a method for optically screening materials for topography comprising the steps of monitoring a reflected portion of an electromagnetic wavefront off of sample materials in which mass of the sample materials is predetermined, correlating the portion to a topography of the materials, correlating a topography to a volume of the materials and correlating the mass and the volume to a density of the sample materials.

***Response to Arguments***

12. Applicant's arguments with respect to claims 17-29 and 34-36 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

United States Patent 6,034,775 to McFarland et al. discloses an optical system for rapid screening of libraries of different materials that includes electromagnetic waves that are directed through a partial mirror before being reflected off sample surfaces and addresses the relevancy of sample thickness to measured results.

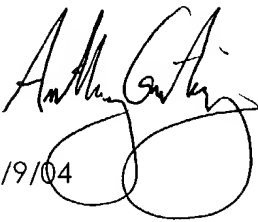
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Gutierrez whose telephone number is (571) 272-2215. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

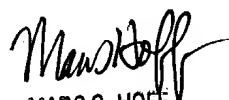
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Gutierrez



7/9/04



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